



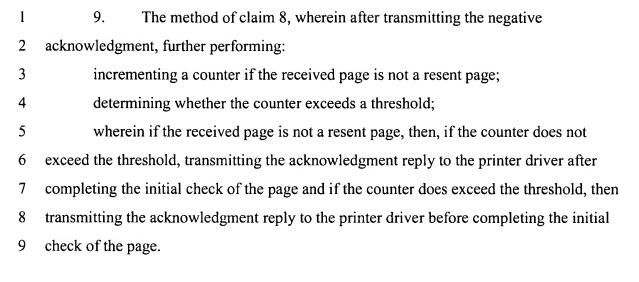
## **WHAT IS CLAIMED IS:**

1	1	A method	for	interfacing	with a	printer	driver	comprising:
1	1.	Ameniou	IOI .	michacing	willia	printer	univer,	comprising.

- 2 receiving data transmitted from the printer driver;
- 3 receiving an acknowledgment request from the printer driver, wherein the printer
- 4 driver does not send further data to print until receiving an acknowledgment reply
- 5 indicating that the transmitted data passed an initial check;
- 6 transmitting an acknowledgment reply to the printer driver in response to the
- 7 acknowledgment request before completing the initial check of the sent data to cause the
- 8 printer driver to send further data;
- 9 resynchronizing data processing operations in response to detecting an error in the
- 10 received data; and
- rasterizing and outputting the data.
- 1 2. The method of claim 1, wherein the received data comprises a first
- 2 received data set, further comprising receiving a second data set from the printer driver
- 3 after transmitting the acknowledgment reply and before completing the rasterization of
- 4 the first data set.
- 1 3. The method of claim 2, wherein each received data set comprises a page of
- 2 data, a portion of a page or commands to output.
- 1 4. The method of claim 2, further comprising:
- buffering the second data set while the first data set is being rasterized; and
- 3 rasterizing the buffered second data set after completing the rasterization of the
- 4 first data set.



I	5. The method of claim 2, further comprising:
2	concurrently rasterizing the first and second data sets with two rasterizers to
3	rasterize in parallel the two data sets.
1	6. The method of claim 1, wherein the initial check is to verify that the data
2	was received, accepted and syntax checked.
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1	7. The method of claim 1, wherein resynchronizing data precessing
2	operations in response to detecting the error further comprises:
3	detecting an error while processing the received data;
4	transmitting a negative acknowledgment indicating an error that causes the printer
5	driver to resend previously transmitted data that did not output successfully; and
6	wherein after transmitting the negative acknowledgment, performing:
7	(i) receiving data and one acknowledgment request;
8	(ii) performing the initial check of the received data;
9	(iii) determining whether the received data is resent data; and
10	(iv) if the received data is resent data, then transmitting an
11	acknowledgment reply to the printer driver in response to the acknowledgment
12	request after completing the initial check of the resent data.
1	8. The method of claim 7, wherein the received data comprises a page of
2	data, wherein after transmitting the negative acknowledgment, further performing:
3	if the received page is not a resent page, then transmitting an acknowledgment
4	reply to the printer driver in response to the acknowledgment request before completing
5	the initial check of the sent data to cause the printer driver to send further pages.



- 10. The method of claim 1, wherein transmitting the acknowledgment reply to the printer driver in response to the acknowledgment request before completing the initial check of the sent data comprises an asynchronous processing mode, and wherein resynchronizing data processing operations in response to detecting the error comprises beginning a synchronous processing mode wherein the acknowledgment reply is sent to the printer driver in response to the acknowledgment request after completing the initial check of the resent data.
- 11. A system for interfacing with a printer driver, comprising:

  means for receiving data transmitted from the printer driver;

  means for receiving an acknowledgment request from the printer driver, wherein
  the printer driver does not send further data to print until receiving an acknowledgment
  reply indicating that the transmitted data passed an initial check;

  means for transmitting an acknowledgment reply to the printer driver in response
  to the acknowledgment request before completing the initial check of the sent data to

cause the printer driver to send further data;





means for resynchronizing data processing operations in response to detecting an 10 error in the received data; and

11 means for rasterizing and outputting the data.

- 1 12. The system of claim 11, wherein the received data comprises a first
- 2 received data set, further comprising means for receiving a second data set from the
- 3 printer driver after transmitting the acknowledgment reply and before completing the
- 4 rasterization of the first data set.
- 1 13. The system of claim 12, wherein each received data set comprises a page 2 of data, a portion of a page or commands to output.
- 1 14. The system of claim 12, further comprising:
- 2 means for buffering the second data set while the first data set is being rasterized;
- 3 and

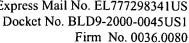
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- 4 means for rasterizing the buffered second data set after completing the
- 5 rasterization of the first data set.
- 15. 1 The system of claim 12, further comprising:
- 2 means for concurrently rasterizing the first and second data sets with two
- 3 rasterizers to rasterize in parallel the two data sets.
- 1 16. The system of claim 11, wherein the initial check is to verify that the data
- 2 was received, accepted and syntax checked.
- 1 17. The system of claim 11,
- 2 wherein the means for resynchronizing data precessing operations in response to
- 3 detecting the error further comprises:



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4	(i) detecting an error while processing the received data;
5	(ii) transmitting a negative acknowledgment indicating an error that causes
6	the printer driver to resend previously transmitted data that did not output
7	successfully; and
8	means for performing, after transmitting the negative acknowledgment:
9	(i) receiving data and one acknowledgment request;
10	(ii) performing the initial check of the received data;
11	(iii) determining whether the received data is resent data; and
12	(iv) if the received data is resent data, then transmitting an
13	acknowledgment reply to the printer driver in response to the acknowledgment
14	request after completing the initial check of the resent data.
1	18. The system of claim 17, wherein the received data comprises a page of
2	data, further comprising means for performing after transmitting the negative
3	acknowledgment:
4	if the received page is not a resent page, then transmitting an acknowledgment
5	reply to the printer driver in response to the acknowledgment request before completing
6	the initial check of the sent data to cause the printer driver to send further pages.
1	19. The system of claim 18, further comprising means for performing, after
2	transmitting the negative acknowledgment:
3	incrementing a counter if the received page is not a resent page;
4	determining whether the counter exceeds a threshold;
5	wherein if the received page is not a resent page, then, if the counter does not
6	exceed the threshold, transmitting the acknowledgment reply to the printer driver after
7	completing the initial check of the page and if the counter does exceed the threshold, then
8	transmitting the acknowledgment reply to the printer driver before completing the initial
9	check of the page.





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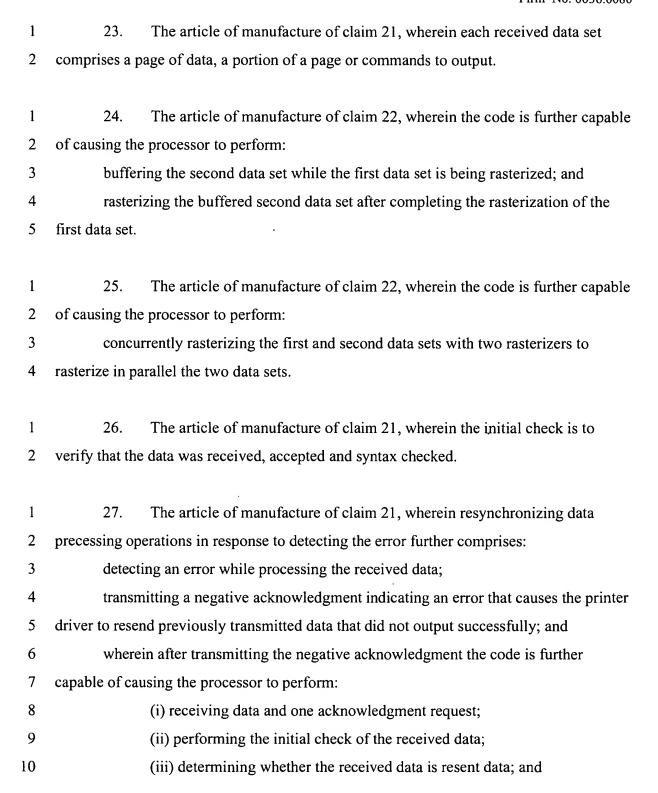
1	20. The system of claim 11, wherein the means for transmitting the
2	acknowledgment reply to the printer driver in response to the acknowledgment request
3	before completing the initial check of the sent data comprises an asynchronous processing
4	mode, and wherein the means for resynchronizing data processing operations in response
5	to detecting the error comprises beginning a synchronous processing mode wherein the
6	acknowledgment reply is sent to the printer driver in response to the acknowledgment
7	request after completing the initial check of the resent data.
1	21. An article of manufacture for interfacing with a printer driver, wherein the
2	article of manufacture comprises code implemented in a computer readable medium to
3	cause a processor to perform:
4	receiving data transmitted from the printer driver;
5	receiving an acknowledgment request from the printer driver, wherein the printer
6	driver does not send further data to print until receiving an acknowledgment reply
7	indicating that the transmitted data passed an initial check;
8	transmitting an acknowledgment reply to the printer driver in response to the
9	acknowledgment request before completing the initial check of the sent data to cause the

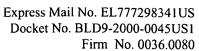
printer driver to send further data; resynchronizing data processing operations in response to detecting an error in the received data; and

13 rasterizing and outputting the data.

22. The article of manufacture of claim 21, wherein the received data comprises a first received data set, wherein the code is further capable of causing the processor to perform receiving a second data set from the printer driver after transmitting the acknowledgment reply and before completing the rasterization of the first data set.







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11	(iv) if the received data is resent data, then transmitting an
12	acknowledgment reply to the printer driver in response to the acknowledgment
13	request after completing the initial check of the resent data.
1	28. The article of manufacture of claim 27, wherein the received data
2	comprises a page of data, wherein after transmitting the negative acknowledgment,
3	further performing:
4	if the received page is not a resent page, then transmitting an acknowledgment
5	reply to the printer driver in response to the acknowledgment request before completing
6	the initial check of the sent data to cause the printer driver to send further pages.
1	29. The article of manufacture of claim 28, wherein the code is further capable
2	of causing the processor to perform after transmitting the negative acknowledgment:

- incrementing a counter if the received page is not a resent page;

  determining whether the counter exceeds a threshold;

  wherein if the received page is not a resent page, then, if the counter does not

  exceed the threshold, transmitting the acknowledgment reply to the printer driver after

  completing the initial check of the page and if the counter does exceed the threshold, then

  transmitting the acknowledgment reply to the printer driver before completing the initial

  check of the page.
- The article of manufacture of claim 21, wherein transmitting the
  acknowledgment reply to the printer driver in response to the acknowledgment request
  before completing the initial check of the sent data comprises an asynchronous processing
  mode, and wherein resynchronizing data processing operations in response to detecting
  the error comprises beginning a synchronous processing mode wherein the
  acknowledgment reply is sent to the printer driver in response to the acknowledgment
  request after completing the initial check of the resent data.